

THAT WHICH IS CLAIMED:

1. A projection display apparatus comprising:

a color separating and synthesis optical system comprising a first polarized light separating means, a second polarized light separating means, a third polarized light separating means and a fourth polarized light separating means wherein said first, second, 5 third and fourth light separating means are disposed in respective diagonal directions therein, said first polarized light separating means is disposed on that side on which illuminating light is incident and said fourth polarized light separating means is disposed on that side at which projection is performed, a first reflective type spatial light modulating elements disposed on either the opposite side with respect to that side of said second 10 polarized light separating means on which said first polarized light separating means is disposed or the opposite side with respect to that side on which said fourth polarized light separating means is disposed, a second reflective type spatial light modulating elements disposed on the opposite side with respect to that side of said third polarized light separating means on which said first polarized light separating means is disposed, and a 15 third reflective type spatial light modulating elements disposed on the opposite side with respect to that side of said third polarized light separating means on which said fourth polarized light separating means is disposed, in which color separating and synthesis optical system, after light including light of the three primary colors made in advance into light of determined polarization from light of indeterminate polarization is separated into 20 the respective primary colors by said first, second and third polarized light separating means, and after each respective color undergoes modulation coordinated to an image signal for each respective color and is reflected by the respective said first, second and third reflective type spatial light modulating elements, color synthesis is performed and a color image is generated by said second, third and fourth polarized light separating means; and 25

a projection lens for expansively projecting said color image generated by said color separating and synthesis optical system;

wherein at least two from among said first, second, third and fourth polarized light separating means are wire grid polarized light separating plates and a lens for correcting 30 astigmatism is disposed near the side of the reflective surface of at least one from among said first, second and third reflective type spatial light modulating elements.

2. A projection display apparatus according to claim 1 wherein said astigmatism correcting lens is a cylindrical lens.

3. A projection display apparatus according to claim 2 wherein the surface of said cylindrical lens is an aspheric, toroidal surface.

5 4. A projection display apparatus comprising:

a color separating and synthesis optical system comprising a first light separating means, a second light separating means, a third light separating means and a fourth light separating means wherein said first, second, third and fourth light separating means are disposed in respective diagonal directions therein, said first light separating means is disposed on that side on which illuminating light is incident and said fourth light separating means is disposed on that side at which projection is performed, a first reflective type spatial light modulating elements disposed on either the opposite side with respect to that side of said second light separating means on which said first light separating means is disposed or the opposite side with respect to that side on which said fourth light separating means is disposed, a second reflective type spatial light modulating elements disposed on the opposite side with respect to that side of said third light separating means on which said first light separating means is disposed, and a third reflective type spatial light modulating elements disposed on the opposite side with respect to that side of said third light separating means on which said fourth light separating means is disposed, in which color separating and synthesis optical system, after light including light of the three primary colors is separated into the respective primary colors by said first, second and third light separating means, and after each respective color undergoes modulation coordinated to an image signal for each respective color and is reflected by the respective said first, second and third reflective type spatial light modulating elements, color synthesis is performed and a color image is generated by said second, third and fourth light separating means; and

a projection lens for expansively projecting said color image generated by said color separating and synthesis optical system;

wherein said first light separating means is a first dichroic separating means, said fourth light separating means is a second dichroic separating means or a polarized light beam splitter means, said other light separating means are wire grid polarized light separating plates, and a lens for correcting astigmatism is disposed near the side of the reflective surface of at least one from among said first, second and third reflective type spatial light modulating elements.

5. A projection display apparatus according to claim 4 wherein said astigmatism correcting lens is a cylindrical lens.

6. A projection display apparatus according to claim 5 wherein the surface of
5 said cylindrical lens is an aspheric, toroidal surface.

7. A projection display apparatus comprising:

a color separating and synthesis optical system comprising a first light separating means, a second light separating means, a third light separating means and a fourth light separating means wherein said first, second, third and fourth light separating means are
10 disposed in respective diagonal directions therein, said first light separating means is disposed on that side on which illuminating light is incident and said fourth light separating means is disposed on that side at which projection is performed, a first reflective type spatial light modulating elements disposed on either the opposite side with respect to that
15 side of said second light separating means on which said first light separating means is disposed or the opposite side with respect to that side on which said fourth light separating means is disposed, a second reflective type spatial light modulating elements disposed on the opposite side with respect to that side of said third light separating means on which said first light separating means is disposed, and a third reflective type spatial light modulating
20 elements disposed on the opposite side with respect to that side of said third light separating means on which said fourth light separating means is disposed, in which color separating and synthesis optical system, after light including light of the three primary colors is separated into the respective primary colors by said first, second and third light separating means, and after each respective color undergoes modulation coordinated to an image
25 signal for each respective color and is reflected by the respective said first, second and third reflective type spatial light modulating elements, color synthesis is performed and a color image is generated by said second, third and fourth light separating means; and

a projection lens for expansively projecting said color image generated by said color separating and synthesis optical system;

30 wherein said second and third light separating means are wire grid polarized light separating plates, a first polarized light separating plate is disposed on that side of said fourth light separating means having said second light separating means and a second polarized light separating plate is disposed on that side of said fourth light separating means having said third light separating means.

8. A projection display apparatus according to claim 7 wherein a lens for correcting astigmatism is disposed near the side of the reflective surface of at least one from among said first, second and third reflective type spatial light modulating elements.

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9. A projection display apparatus according to claim 8 wherein said astigmatism correcting lens is a cylindrical lens.

10. A projection display apparatus according to claim 7 wherein said fourth light separating means is a dichroic prism.

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